## REMARKS

This application has been reviewed in light of the Office Action dated May 11, 2007. Claims 1-9 are presented for examination, of which Claims 1, 4 and 7 are in independent form. Claims 1, 3, 4, 7 and 9 have been amended to define still more clearly what Applicant regards as his invention. The original specification (including abstract) has been replaced with the attached substitute specification, which is submitted in both a marked and a clean version. No new matter has been added. Favorable reconsideration is requested.

Initially, the claims have been amended to address the points raised by the Examiner in the various formal objections made to certain of the claims. Accordingly, withdrawal of those objections is respectfully requested.

In the outstanding Office Action, Claims 1-4 and 7-9 were rejected under 35 U.S.C. § 103(a) as being obvious from unpatentable over U.S. Patent 5,517,335 (Shu) in view of U.S. Patent 5,089,882 (Kaye et al.). Claim 5 was rejected under Section 103(a) as being obvious from those two patents in view of U.S. Patent 5,809,181 (Metcalfe), and Claim 6, as being obvious from those three documents in view of U.S. Patent 6,650,336 (Suzuki).

As is described in the present application in greater detail, it is fundamental to much color processing to be able to calculate saturation and hue corresponding, for example, to a given color difference signal. In particular, it is common for image pick-up systems to pick up an image as red, green and blue signals (RGB), but it is difficult to manage certain aspects of color image processing with color signals expressed in this form. The Lab system, in contrast, is very well suited for such image processing. One aspect of

that system, however, is that to express a color-difference signal involves taking the square root of the quantity a*2 + b*2, while calculation the hue angle involves finding the arctangent of b*/a*. These calculations, however, normally involve large computational loads on the system, whether they are performed by means of floating point arithmetic or by means of integer calculations.

While one might consider using a look-up table ("LUT") to avoid some or all of this calculating, the size of such an LUT increases quickly with the number of pixels per image, and in practice would be highly disadvantageous, if not exorbitant. The present invention has been developed in an effort to solve this problem, by providing a technique capable of obtaining the needed information from a given color difference, without using either such processing-intensive calculations, or such an LUT.

Independent Claim 1 is directed to a color conversion method of inputting at least two color difference values and obtaining a corresponding saturation value. The method of Claim 1 involves creating a main lookup table which stores saturation values for the color difference values, and a sub-lookup table for obtaining a value (SUB LUT[C1]) corresponding to a first one of the two color difference values (C1), which is equal to or less than the second color difference value (C2), for use in accessing the main lookup table. An address to be used in accessing the main lookup table is determined in correspondence with the two color difference values on the basis of the value (SUB LUT[C1]) obtained from the sub-lookup table by the first color difference value (C1) and a difference (C2-C1) between the two color difference values. A saturation value corresponding to the two color

difference values is then obtained from the main lookup table, using the address determined in the determining step.[1]

*Shu* relates to a system that computes an average value of RGB and selects a minimum value and a maximum value of three primary colors RGB. *Shu* uses a first lookup table (LUT1) and a second lookup table (LUT2), and calculates a variable delta by using a value retrieved from the LUT1 by using the average value and multiplies the retrieved value by a second value retrieved from the LUT2 by using the difference between the maximum and minimum values. Finally, the two values obtained from the lookup tables LUT1 and LUT2 are multiplied together to determine the delta value.

Applicant submits, however, that even if *Shu* uses the difference between the maximum and minimum values, nothing has been found in that patent that would teach or suggest using the difference between two color difference values, as recited in Claim 1.

Moreover, even if *Shu* has two LUTs, nothing has been found int aht patent that would teach or suggest using one lookup table to determine an address that is then used in accessing a main lookup table, much less doing so on the basis of (i) the value obtained from a sub-lookup table by a first color difference value and (ii) a difference between two color difference values.

For all these reasons, it is believed to be clear that Claim 1 is allowable over *Shu*, taken alone.

*Kaye* relates to a system that addresses a saturation in an EPROM by unique pairs of values corresponding to incoming R-Y and B-Y signals. Applicant submits,

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[1/] It is of course to be understood that the claim scope is not limited by the details of this or any other embodiment referred to.

however, that nothing in *Kaye* would teach or suggest a sub-lookup table for obtaining a value corresponding to a first color difference value, which is equal to or less than a second color difference value, as recited in Claim 1. Further, nothing has been found in *Kaye* that would teach or suggest determining an address for use in accessing a main lookup table in correspondence with two color difference values, on the basis of a value obtained from such sub-lookup table based on the first color difference value and a difference between the two color difference values. Even if *Kaye* is deemed to show using the output from one lookup table to address another lookup table, that would not suggest the specific steps recited in Claim 1, in which the signal used to access the recited sub-lookup table is one of a pair of color difference signals (specifically, the smaller of the two). Still less would that in any way suggest using the output of such a sub-lookup table and the difference between the two signals to access a second lookup table, as recited in Claim 1.

Accordingly, even if *Kaye* and *Shu* are combined, and even assuming that such combination would be a permissible one, the result would not meet the terms of Claim 1. Accordingly, that claim is believed to be allowable over those two patents, taken singly or in any permissible combination (if any).

The other independent claims are each apparatus claims corresponding to method Claim 1, and are believed to be allowable over the art discussed above for at least the reasons provided above.

A review of the other art of record has failed to reveal anything which, in Applicant's opinion, would remedy the deficiencies of the art discussed above, as a reference against the independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing remarks, Applicant respectfully requests favorable reconsideration and allowance of the present application.

Applicant's undersigned attorney may be reached in our New York Office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,

/Leonard P Diana/
Leonard P. Diana
Attorney for Applicant
Registration No. 29,296

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200

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